Chapter 2 Project Description and Development

Chapter 2 describes why the project is needed, its history, the proposed configuration, and what WSDOT is doing to move the project forward. The No Action Alternative is also described.

1 What is the project and why is it being proposed?

The Washington State Department of Transportation (WSDOT) and the Federal Highway Administration (FHWA) propose to improve and widen a 4.3-mile corridor of State Route (SR) 522. The project begins in Snohomish County near Cathcart Road at milepost (MP) 20.41. The project ends at United States Highway 2 (US 2) at MP 24.68 in the City of Monroe, as shown in Exhibit 1-1.

The purpose of the project is to improve safety and operations, reduce congestion, and improve current and future mobility for traffic in the SR 522 corridor from the Cathcart Road vicinity (also known as Elliott Road) to US 2. The improvements are needed to safely accommodate the existing and growing numbers of vehicles traveling on SR 522 and the increasing truck/freight vehicle mix.

What are the specific traffic issues?

SR 522 had an annual average daily traffic volume of 18,000 to 19,000 vehicles during the years 2001 to 2003 (Mirai Associates 2007). Based on a 2004 traffic study, over 24,000 vehicles use this stretch of highway each day (WSDOT 2007a). The population of Snohomish County has increased by over 37 percent in the last 15 years. Between 1994 and 2004, the volume of traffic on this stretch of SR 522 increased by 33 percent. This increase in traffic volumes causes vehicles to

experience delays of up to 1 minute and 15 seconds at intersections along the corridor during the morning and evening commute. The queues at intersections on eastbound and westbound US 2 approaching SR 522 have become long and often back up into other nearby intersections on US 2. Exhibit 2-1 shows the existing PM peak delays and level of service (LOS) at area intersections.

What are the specific safety issues?

On October 26, 2000, *Reader's Digest* identified SR 522 between Woodinville and Monroe as one of "America's Most Dangerous Highways." While interim safety improvements have reduced collision rates, local politicians and local residents continue to ask WSDOT to make SR 522 safer.

Currently, the highway has one lane in each direction without median separation. Collisions on the stretch of highway from just east of the Fales/Echo Lake Road to US 2 increased 113 percent between 1994 and 2004. Additionally, collisions that caused injuries increased by 40 percent during that time (WSDOT 2007b).

Widening the highway will separate the two directions of traffic, which will improve safety. The widening of SR 522 to two lanes in each direction will potentially decrease the number of collisions. The additional lanes will increase the gaps between the vehicles, decreasing the probability of vehicle collisions. Median separation will reduce the potential for high-severity head-on collisions.

What is Level of Service?

Level of service (LOS) is a measurement of the quality of traffic operations on a given transportation facility. LOS grading ranges from A through F, similar to grading scales used in the education system, where A is the best grade and F the worst. LOS A represents a condition in which drivers would experience minimal delays. At LOS C or D, traffic typically flows reasonably well with some delays. LOS E and F indicate stop-and-go conditions with frequent delays.

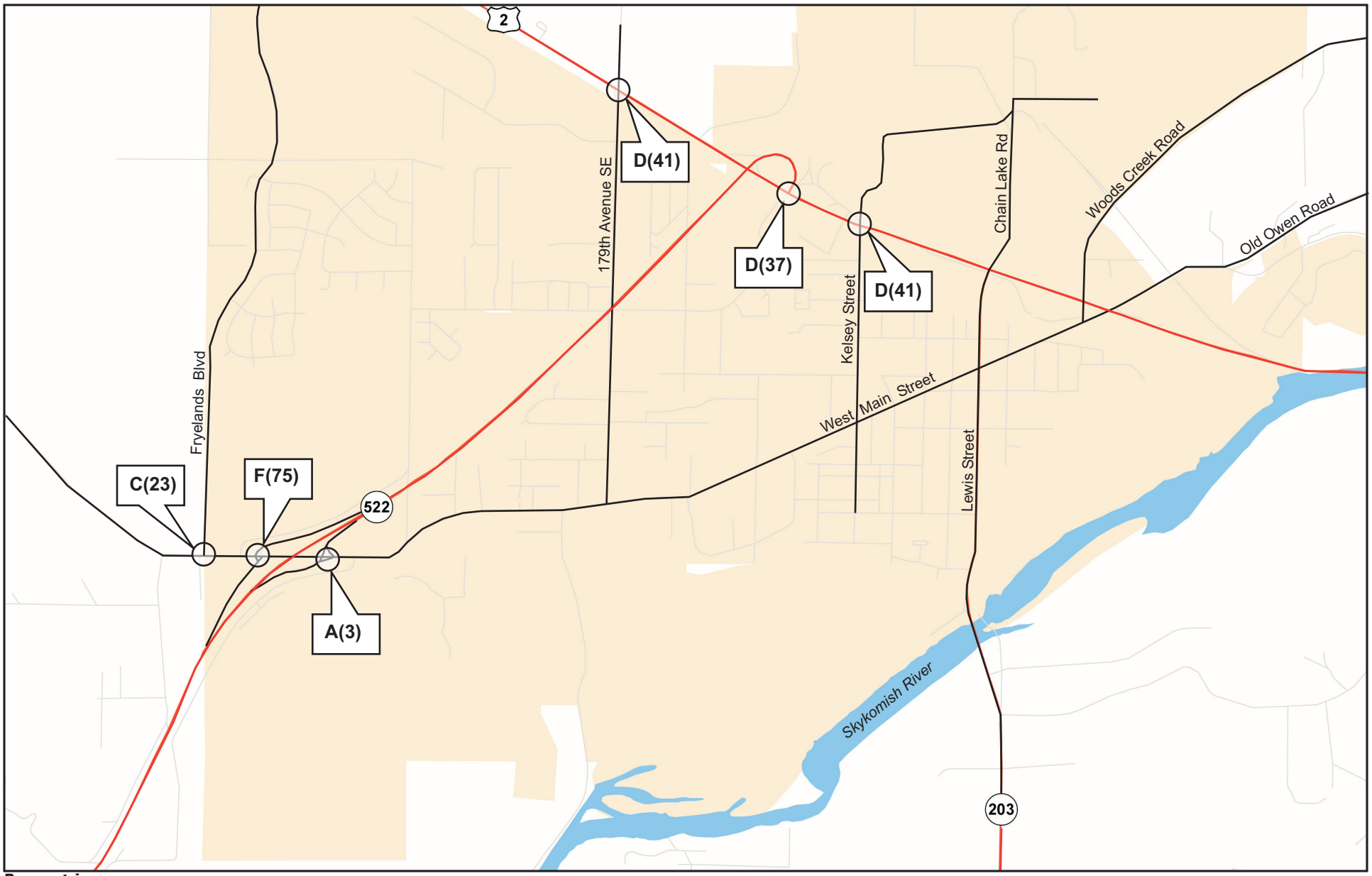
LOS	Avg, Delay Signalized (Seconds)	Avg, Delay Unsignalized (Seconds)
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Source: Highway Capacity Manual (TRB 2000)

2 What is the project's background and history?

What was the original design and configuration for SR 522?

The existing roadway was designed as a four-lane full access control highway in the early to mid-1960s. Construction of the first two lanes was completed in the 1960s, with sufficient right-of-way provided for future widening to a four-lane highway with grade-separated interchanges. Consequently, the additional right-of-way needed to widen the highway is limited to approximately a 2,000-foot stretch.



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N

0 0.25 0.5

Scale in Miles

A(3) LOS level (Delay in Seconds)

Monroe City Limits

Exhibit 2-1

Existing 2005 PM Peak Delays at Intersections

What improvements has WSDOT previously considered?

In 1994, WSDOT published a Final Environmental Impact Statement (EIS) for improvements to SR 522 from SR 9 in Woodinville to US 2 in Monroe (WSDOT 1994). The 1994 Final EIS presented construction of the SR 522 corridor improvements in five stages. WSDOT developed these stages primarily due to limitations on the amount of available funding. The 1994 Final EIS referred to the portion of SR 522 from the Cathcart Road vicinity to US 2 as "Stage 5." Exhibit 2-2 depicts these stages.

In 1999, WSDOT began implementing some of these SR 522 improvements. To date, the following actions have been taken:

- WSDOT widened SR 522 from two lanes to four lanes between SR 9 and Paradise Lake Road (Stage 1) in 2001.
- Several changes in environmental regulations and funding led to a new National Environmental Policy Act (NEPA) review of the former Stages 2, 3, and 4. In 2003, highway improvements in these stages were reclassified and reanalyzed as a NEPA Documented Categorical Exclusion, titled SR 522 Paradise Lake Road Vicinity to Cathcart Road Vicinity.
- WSDOT began construction of the SR 522 and Fales Road/Echo Lake Road Interchange in 2004, and the interchange opened in August 2006. This section was defined as Stage 4 in the 1994 Final EIS.

The widening of SR 522 from Paradise Lake Road to the vicinity of Cathcart Road and improvements to the Paradise Lake Road interchange (Stages 2 and 3 in the 1994 Final EIS) have not been implemented yet as they are awaiting funding.

In 1994, WSDOT also considered a proposal for widening SR 522 that was submitted in the Public Private Initiatives program. This project would have been privately developed and financed, and would have made SR 522 a toll road. The negotiations for a development agreement were abandoned in part because of lack of support for tolls on SR 522.

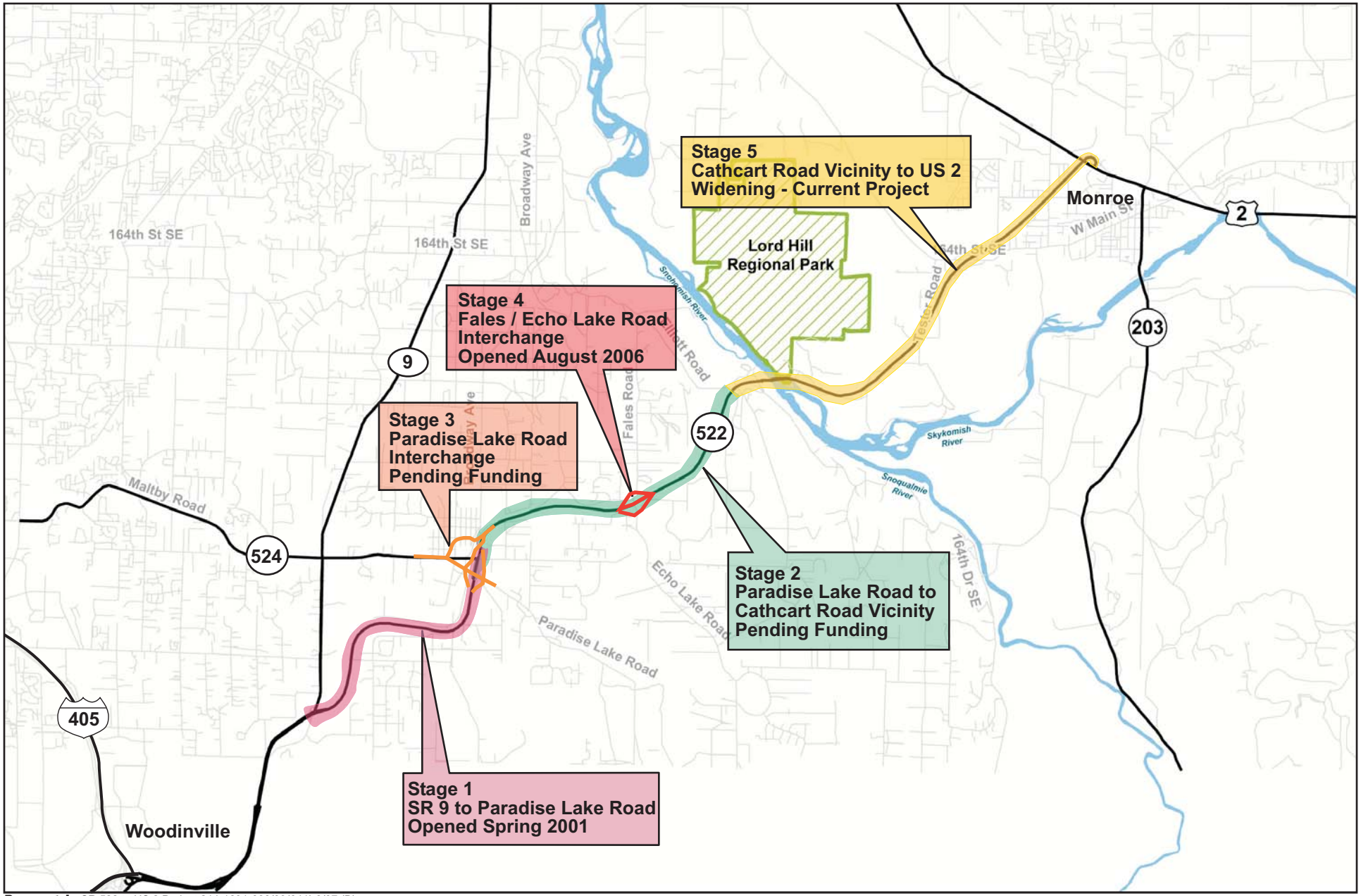

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Exhibit 2-2

SR 522 Stages Presented in the 1994 Final EIS

How did WSDOT determine the project limits?

The project limits (or termini) were determined, in part, by three primary factors under NEPA regulation, 23 Code of Federal Regulations (CFR) 771.111(f), which guides the logical framing of highway projects:

1. The stretch of SR 522 from the Cathcart Road vicinity to US 2 spans the Snohomish River and French Creek Basins, which is a large enough area to allow for sufficient consideration of environmental issues.
2. The proposed transportation improvements can function independently if no other transportation improvements in the area are made.
3. The project will not restrict consideration of alternatives for other transportation improvements within the reasonably foreseeable future.

In this Environmental Assessment, the term "project area" globally encompasses the areas in which permanent improvements are proposed, as well as the adjacent areas that would be physically disturbed during construction.

The term "study area" defines the area analyzed and this area may vary by topic.

Terminus in the Cathcart Road Vicinity

The project boundary in the Cathcart Road vicinity balances the needs for consideration of environmental issues and for independent traffic operations. The Cathcart Road vicinity is a logical break where it is possible to consider the environmental issues relative to crossing the Snohomish River without precluding a range of future options for crossing the river.

The widening of SR 522 through the Fales Road interchange extends to the east to accommodate queuing and merging through the interchange. Beyond that point, traffic operations are distinctly different. The transition from a two-lane to a four-lane highway near Cathcart Road, which will occur until the westerly portion of SR 522 is widened, would not affect traffic operations at the Fales Road interchange.

Terminus at US 2

SR 522 currently terminates at US 2 in the City of Monroe. Thus, this was the logical eastern terminus for the project. Improvements in and around the US 2 interchange are only intended to address the increased traffic volumes connecting to US 2 from SR 522. (These improvements are discussed in *How*

did WSDOT decide on the improvements to the interchange with US 2? on page 2-17) The improvements at the US 2 interchange do not restrict future consideration of improvements to US 2, the potential future extension of SR 522, or a US 2 bypass. Other transportation improvements planned in the City of Monroe are described in Question 13, What is the No Action Alternative?

Why is WSDOT preparing a new environmental document for this portion of SR 522?

The environmental process primarily addresses:

- Potential effects of the Snohomish River crossing alternatives on transportation, people, and ecosystems, as well as cultural resources, historic resources, and public lands.
- Potential effects on federally listed species, due to recent additions of Chinook salmon, bull trout, and steelhead to the endangered species list.
- Potential effects of Snohomish River crossing alternatives on low-income and minority populations and the associated outreach necessary to reach these populations.

In addition, the scope of the EA addresses the final 4 miles of SR 522 (Stage 5 of the 1994 Final EIS), which was not included in the 2003 Documented Categorical Exclusion. The EA also addresses improvements to the US 2 interchange. These improvements have changed since the analysis for the previous SR 522 environmental documents was conducted.

How did WSDOT and FHWA choose an EA as the appropriate level of documentation?

NEPA environmental review prepares the project to receive federal funding for design and construction should it be available. WSDOT and FHWA determined that an EA is the appropriate level of review, rather than a Categorical Exclusion or EIS, based on the rationale below.

A NEPA Categorical Exclusion is not appropriate because widening of the highway from two to four lanes and acquiring

additional right-of-way will affect the environment. The proposed project will incur individual and cumulative environmental effects as defined by changes in Endangered Species Act regulations since 1994.

The purpose of this EA is to determine the level of significance of the environmental impacts and to design the project to minimize and/or avoid environmental effects so that issuance of a Finding of No Significant Impact (FONSI) will be appropriate. Therefore, preparation of an EIS will not be needed.

How does the timing of this project fit in with other SR 522 projects?

In 1998 funds became available to finish the design and construct Stage 1, the highway widening to a four-lane divided highway from SR 9 to Paradise Lake Road (maintaining a signalized intersection at Paradise Lake Road). Construction was complete in 2001.

The Washington State Legislature dedicated additional funds in 1999 (Referendum 49 funds) that all but vanished with the passage of Initiative 695, a citizen-sponsored ballot measure that, among other things, reduced transportation funding. The few remaining funds were used to continue the design for Stages 2, 3, and 4, which will complete all the improvements west of Cathcart Road.

In 2002 funding became available to finish the design of Stages 2, 3, and 4 as one project, Paradise Lake Road to Cathcart Road vicinity. Construction of only the Fales/Echo Lake Road interchange was completed in 2006. The timing for widening of SR 522 between Paradise Lake Road and the vicinity of Cathcart Road is unknown and awaiting funding. Additionally, the timing for constructing the improvements to the Paradise Lake Road Interchange are also unknown and awaiting funding.

The 2003 Nickel Funding Package authorized by the Legislature made it possible to begin the preliminary design and environmental documentation for the widening of SR 522

Appendix A

Please refer to Appendix A, SR 522 Roadway Alternatives Description, for more detail on the alternatives evaluated for this project.

between the Cathcart Road vicinity (near the Snohomish River) and US 2. Construction of this project is also funded by the 2003 Nickel Funding Package and is scheduled to begin in 2010.

What alternatives were examined and rejected?

WSDOT conducted much of the alternative development and screening analysis for SR 522 in the 1994 Final EIS. That environmental review process included the review of different alternatives to meet the purpose and need for safety and capacity improvements. Alternatives ranged from transportation system management and transportation demand management to build alternatives, and eventually led to the selected build alternative documented in the 1994 Record of Decision (ROD), which will:

- Add a second two-lane roadway to provide a four-lane median-separated highway from Cathcart Road, just west of the Snohomish River, to US 2 in Monroe.
- Add a new two-lane bridge over the Snohomish River.

Some of the design decisions are further described under Questions 7 through 12.

3 What is the proposed action?

The proposed action for the project will:

- Build a new bridge across the Snohomish River to separate traffic.
- Widen the highway to accommodate four through lanes (two in each direction).
- Provide median separation to reduce head-on collisions.
- Improve the interchange at 164th Street SE (W Main Street) and SR 522.
- Improve the interchange at SR 522 and US 2.
- Replace two culverts with fully fish passable culverts. One of the culverts will also incorporate a wildlife crossing.

These project elements are described in more detail starting in Question 7 of this chapter. Once the highway is improved, WSDOT will maintain and protect the highway by periodically inspecting, repairing, re-striping, resurfacing, and making minor upgrades. Depending on the nature and extent of the maintenance or upgrade, the work may be addressed under a separate environmental review.

4 What will it cost to build the project, and how long will construction take?

The 2007 Legislative budget for the proposed action was approximately $169.1 million, which includes:

- $9.5 million for preliminary engineering, including project design environmental documentation, and permitting.
- $10.3 million for acquisition of right-of-way.
- $149.3 million for construction.

The 2003 Nickel Funding Package provides nearly $169 million. The project also has about $140,000 available from other funding sources.

Construction would take approximately 3 years and is scheduled to begin in the summer of 2010 and be completed by the end of 2013. Exhibit 2-3 shows the preliminary construction schedule.

5 How have the public, agencies, and tribes been involved in the development of the proposed action?

Outreach began with two agency scoping meetings held in October 2005 and July 2006. A public open house was held in August 2006 to inform, communicate with, and listen to the public.

Exhibit 2-3
Preliminary Construction Schedule

Note: Because the proposed project requires many activities, the actual construction sequence has not been worked out in complete detail. The contractor will propose a construction sequence after contract award to most efficiently accomplish the work. This potential construction schedule is a general guide to understanding the steps necessary to complete the proposed facility. It is not to be construed as the final task sequencing plan.

Meetings were held with the Tulalip Tribes on October 26, 2005, and February 23, 2006. The overall project and the proposed Snohomish River bridge crossing were discussed. The Duwamish Tribe, Snoqualmie Tribe, and Yakama Nation have also received project information and meeting invitations because the project is within their tribal consultation area.

Agencies that have authority or expertise in the project were invited to participate as cooperating agencies in August 2007. These agencies are:

- Snohomish County
- City of Monroe
- National Oceanic Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS)
- United States Army Corps of Engineers (Corps)
- United States Environmental Protection Agency (EPA)

- Washington Department of Fish and Wildlife (WDFW)
- Tulalip Tribes
- Snoqualmie Tribe

The City of Monroe and WDFW accepted the invitation to participate as cooperative agencies.

The project team is continuing to engage local officials, tribes, community groups, and residents through mailings (U.S. Mail and email) and open houses. As the project progresses through design and construction, the latest project information can also be found on the project's website: http://www.wsdot.wa.gov/Projects/SR522/Widen/SnoRiver_US2/.

6 What are the key environmental concerns that have been expressed by the public, agencies, and tribes?

Public Concerns

Based on written and verbal comments at the public open house, traffic congestion is the public's primary concern. Some citizens had questions about the project's potential effect on property values for properties close to the highway.

Several citizens expressed concern about habitat connectivity and the potential for the widened roadway to result in more road kill and collisions. A portion of the SR 522 project area lies between Bald Hill and the Snohomish River floodplain. This area has relatively intact blocks of open space where wildlife can be found.

Currently, aside from the elevated span at the Snohomish River and existing roadway intersections in the City of Monroe, SR 522 has no wildlife crossings that are separated from the roadway. Wildlife mortality may increase with higher traffic volumes and the wider highway. Further, vehicle collisions with large mammals represent a safety risk to the motoring public and wildlife populations.

Agency Concerns

Since the 1994 EIS for the corridor, several additional species have been listed under the Endangered Species Act, and the requirements for addressing potential impacts to listed species have changed. Thus, given the need to construct a new bridge over the Snohomish River near the confluence of the Skykomish and Snoqualmie Rivers, resource agencies are concerned about the project's potential effects on listed aquatic species and their habitats. These species include bull trout, Chinook salmon, and steelhead. The Biological Opinions of the United States Fish and Wildlife Service (USFWS) and the NMFS are provided in Appendix J.

Agencies also raised the following concerns:

- Forty-eight wetlands occur in the project area.
- Portions of the highway occur in or over the 100-year floodplain of the Snohomish River.

Tribal Concerns

The Tulalip Tribes has expressed concern over protecting listed species, ethnobotanical resources, and cultural resources. At a meeting, a representative of the Tulalip Tribes stated the importance of the Snohomish River, saying that the whole drainage is a rich repository of cultural history. The Tribe wanted WSDOT to consider the potential project impacts to ethnobotanical resources and expressed interest in the opportunity to harvest native plant materials prior to construction. The Tribe was concerned about stormwater runoff, methods of treatment, and water quality. The Tulalip Tribes also identified a likelihood of encountering cultural artifacts during construction near the river and indicated a desire to participate in any future exploration for cultural resources.

What are ethnobotanical resources?

Ethnobotanical resources are plants and lichens that have traditionally been used by various cultures in western Washington. Traditional uses include food, medicine, fibers, textiles, and building materials.

7 How did WSDOT determine the approach to crossing the Snohomish River?

WSDOT is proposing to construct a new two-lane bridge over the Snohomish River, immediately downstream (north) of the existing bridge. The new bridge will carry traffic traveling to the west towards Woodinville, and the existing bridge will carry traffic traveling east towards Monroe.

Before arriving at this proposed crossing, WSDOT identified seven potential crossing alignments, three of which are upstream of the existing bridge (up to 2,500 feet upstream) and four of which are downstream (up to 1,500 feet downstream). The alignments represent a broad spectrum of possibilities for crossing the river within the general SR 522 corridor. The area where the alignments analyzed in the Snohomish River Bridge Crossing Final Screening Report are located is depicted in Exhibit 2-4. In addition, WSDOT evaluated different bridge types for each potential crossing alignment.

The detailed analysis of the bridge alignments is provided in the SR 522 Cathcart Road to US 2, Snohomish River Bridge Crossing Final Screening Report, dated August 28, 2006.

WSDOT specifically sought options that will avoid or minimize:

- The piers in the river (and the related effects on fish and fish habitat).
- Fill in the floodplain.
- Adverse effects on wetlands and riparian habitats.
- Effects to publicly owned parkland on the east side of the river.
- Residential or business displacements.
- Crossing tributary streams.
- Potential effects on cultural or historic resources.

At the agency scoping meeting in October 2005, WSDOT presented representatives from various federal, state, and local agencies the Snohomish River crossing options under consideration. Agency representatives asked questions and offered comments to inform WSDOT's subsequent efforts to determine the bridge location.

The only bridge alignment in the Screening Report that was found to be acceptable is the alignment included in the proposed action. The location will be immediately north (downstream) of the existing bridge, as shown in Exhibit 2-5. The bridge type will be a 300-foot-span concrete or steel bridge with one pier in the center of the river, which matches the location of the existing bridge pier to minimize disruption of flow, and seven piers in the floodplain.

Exhibit 2-4
Alignments Evaluated in the Snohomish River Bridge Crossing Screening Report

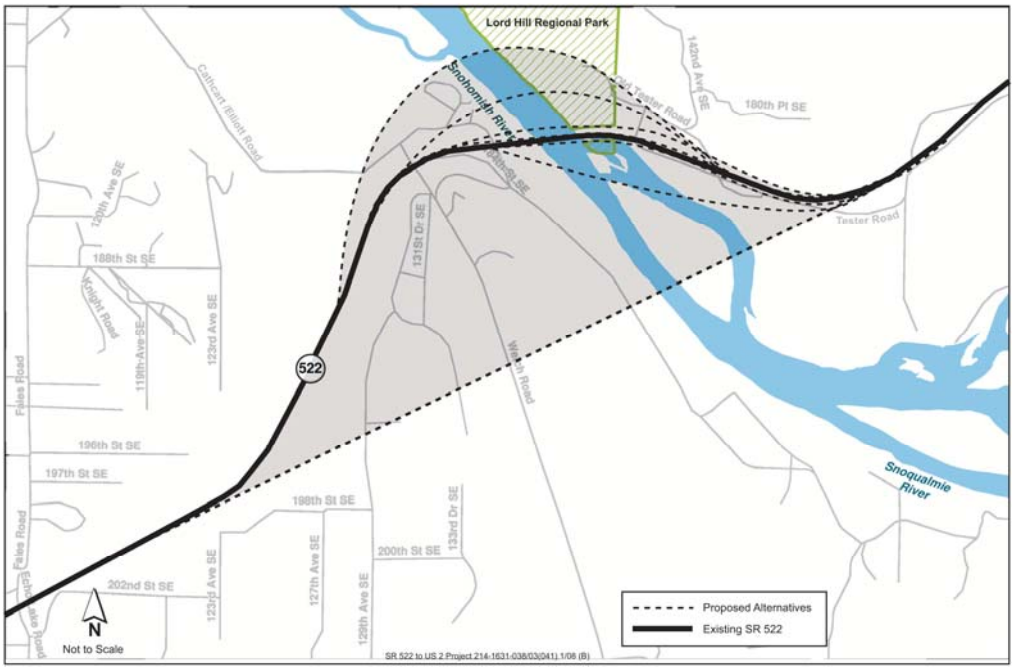


Exhibit 2-5
Visual Simulation of SR 522 Snohomish River Bridge

8 How did WSDOT determine the overall alignment for highway widening?

The exact alignment of the highway widening was constrained by:

- The existing right-of-way that WSDOT acquired in the 1960s. The existing right-of-way width was intended for a four-lane highway. A portion of this right-of-way is already graded for widening.
- The location of the new bridge over the Snohomish River, which dictates the alignment of the approaches.
- Natural features such as wetlands, streams, floodplains, and topography. For example, Bald Hill has steep slopes that restrict alignment options.
- The interchange geometry at 164th Street SE and US 2.

Generally, WSDOT did not contemplate widening configurations that will extend beyond the existing right-of-way, primarily because of the impacts to the environment, adjacent land uses, and additional project cost. However, WSDOT did consider a number of alignments for the Snohomish River crossing that were not within the right-of-way. In addition, along a 2,000-foot stretch of SR 522 the existing right-of-way is not wide enough to accommodate the highway widening because of steep slopes in this location. In this area, the proposed action cuts into the steep slopes along Bald Hill, rather than affecting Tester Road and a large wetland complex on the south side of SR 522. Some acquisitions will also be needed to construct the stormwater treatment facilities for the highway.

9 How did WSDOT decide on the improvements to the interchange at 164th Street SE (W Main Street)?

To improve the traffic conditions in the SR 522 interchange area, WSDOT is proposing geometric changes to the lanes on 164th Street SE, and a roundabout configuration at the

intersection between the westbound SR 522 ramps and 164th Street SE as shown in Exhibit 1-3 and Exhibit 2-6. The roundabout will reduce the traffic delays and queues associated with using stop signs at this intersection. WSDOT considered a traffic signal for the intersection but rejected this option because the roundabout will provide shorter queues, less delay and will provide continuity between the existing roundabout at the eastbound ramps and the intersection between 164th Street SE and Fryelands Boulevard, where the City of Monroe proposes to construct a roundabout. A signal constructed between two roundabouts will disrupt the continuous flow that optimizes the performance of roundabouts.

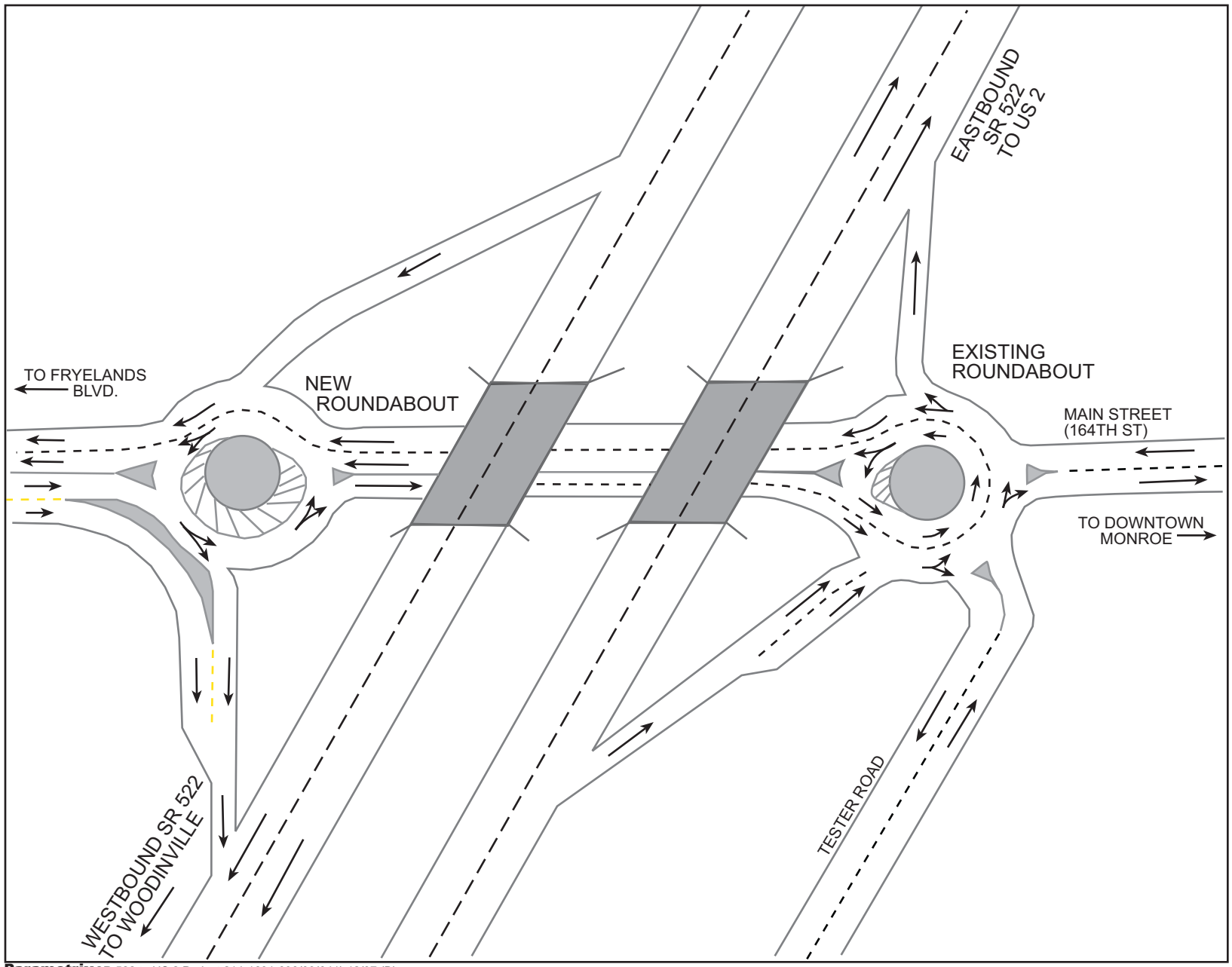
10 How did WSDOT decide on the improvements to the interchange with US 2?

The widening of SR 522 and the associated increase in traffic volumes will potentially worsen traffic conditions at the US 2/SR 522 interchange if it is not modified (Mirai Associates 2007). WSDOT considered the following modifications to the interchange to improve traffic conditions:

- A new ramp connecting eastbound SR 522 directly to eastbound US 2. Three sub-options were considered involving different lengths of improvement along US 2.
- A new ramp connecting US 2 to westbound SR 522. This option will require a new signalized intersection on US 2. This modification was not selected because it will require a new signalized intersection on US 2.

Based on the results of the traffic analysis, WSDOT is proposing to construct a new ramp between eastbound SR 522 and eastbound US 2 for traffic traveling east of N Kelsey Street, as shown in Exhibit 1-4 and Exhibit 2-7. One lane of eastbound SR 522 will exit the highway on this new ramp. The other eastbound lane on SR 522 will continue to travel on the existing ramp to the signalized intersection where vehicles can turn right onto westbound US 2, or turn left to reach the businesses immediately northeast of the

Per the Insurance Institute for Highway Safety, a study of 24 intersections before and after construction of roundabouts by the IIHS found a 39 percent overall decrease in crashes, a 76 percent decrease in injury-producing crashes and 89 percent reduction in collisions involving fatal or incapacitating injuries (IIHS 2000).



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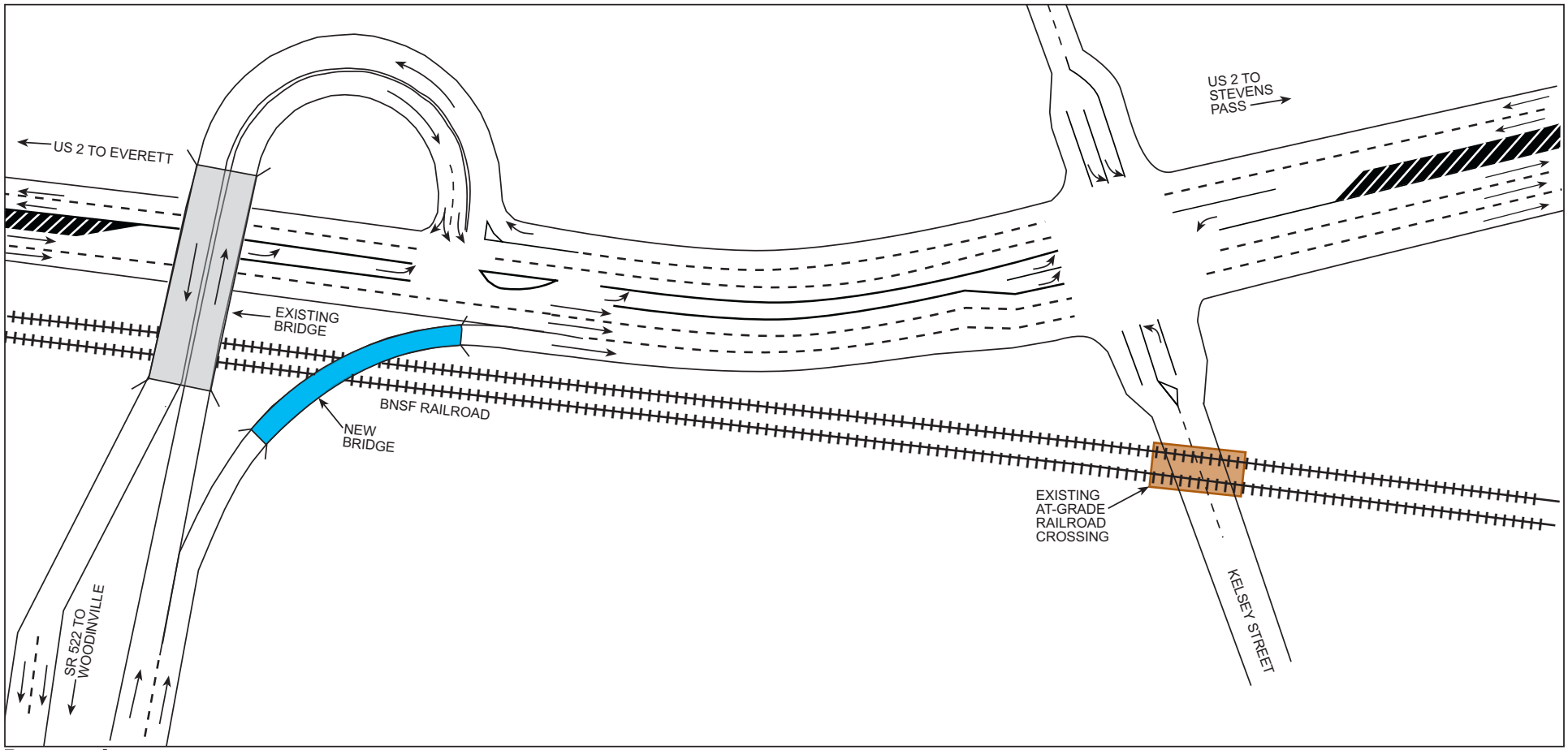
N

Not to Scale

Bridge

Exhibit 2-6

Schematic of Proposed Roundabout



N

Not to Scale

Existing Bridge

New Bridge

Exhibit 2-7

Schematic of Proposed US 2 Interchange

interchange or go north on N Kelsey Street. An additional eastbound lane will be added on US 2 from the end of the new ramp to SR 203/Lewis Street/Chain Lake Road. An additional westbound lane will be added on US 2 between SR 522 and Cascade View Drive. Vehicles coming from US 2 to westbound SR 522 will continue to use the existing on-ramp. These improvements will provide additional capacity while reducing the volume of traffic at the signalized intersection of SR 522 and US 2.

11 How will WSDOT manage stormwater runoff from the highway, and what alternatives were considered?

WSDOT will provide stormwater treatment for both the new and existing impervious surfaces. This will be accomplished primarily at one stormwater treatment wetland, nine combined stormwater treatment wetland/detention ponds, and several infiltration trenches.

Within the 4.3-mile corridor, engineers identified six areas where water tended to drain or discharge and evaluated stormwater flow control and quality control options for each (ABKJ 2006). The six areas, called threshold discharge areas or TDAs, are shown on Exhibit 2-8. A stormwater treatment facility for each TDA is needed in or near the project area.

The criteria for evaluating the stormwater treatment options were planning-level cost estimates, long-term maintenance, land use, and sensitive area impacts. Permitting agencies have been requiring higher levels of treatment and retrofitting to prevent degradation of water quality baseline conditions in drainage basins, especially where endangered species are present downstream of the project. In considering the options, WSDOT designed best management practice (BMP) alternatives that offer more ecological benefit than conventional detention, treatment, and discharge. These BMPs include infiltration, dispersion, and biofiltration. The ability to apply such techniques, however, depends on site-specific conditions, such as soils, topography, and available space.

What is a wetland?

Wetlands are areas that are frequently ponded or saturated by water and support plant communities that have adapted to saturated soil conditions.

What is a stormwater treatment wetland?

The function of a stormwater treatment wetland is to capture and transform pollutants contained in stormwater runoff. As stormwater runoff flows through the wetland or wet pond, pollutants are removed by sedimentation, biofiltration, biodegradation, and biological uptake within the wetland plants in the pond.

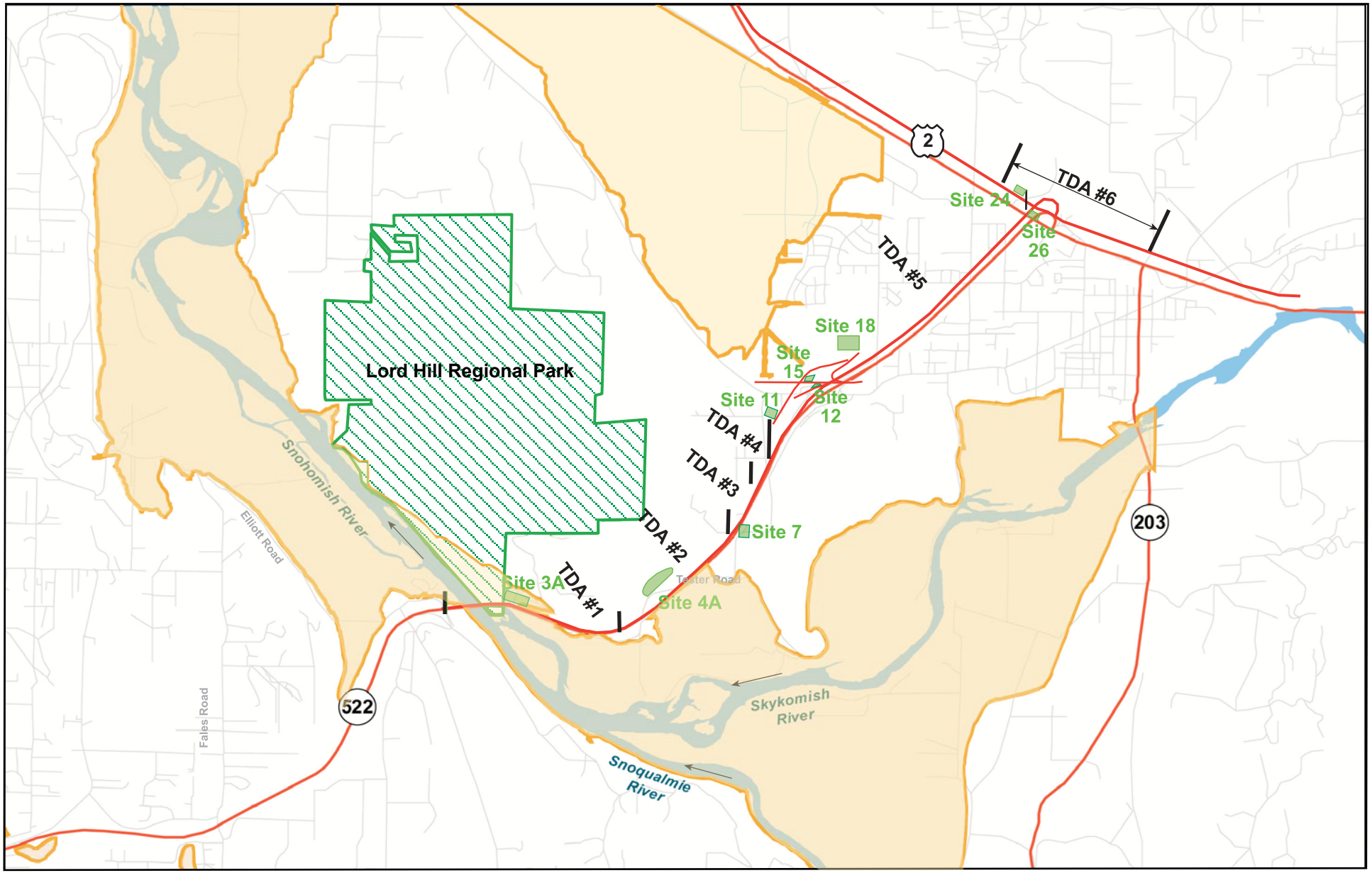
What is a threshold discharge area?

A threshold discharge area (TDA) is an on-site area draining to one or more natural discharge locations that combine within one-quarter mile downstream (as determined by the shortest flow path). TDAs define the smallest practical units where stormwater is generated, pollutants added, and treatment facilities sited within the project area.

What is a BMP?

A best management practice (BMP) is an action or structure that reduces or prevents pollution or sediment from entering the stormwater and decreases possible degradation of water quality.

Question 6 in Chapter 4 discusses BMPs that will be implemented during construction.



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N

Not to Scale

100-Year Floodplain boundary

Approximate Stormwater Treatment Site Location

Exhibit 2-8

Threshold Discharge Areas and Stormwater Treatment Facility Locations

Due to topographic constraints and limited availability of right-of-way, some stormwater BMPs will need to be constructed outside of the existing WSDOT right-of-way. The zoning, land use, and presence of critical areas for these sites were considered when comparing BMP options. Much of the undeveloped land outside the SR 522 right-of-way is protected land, including public lands, wetlands, or floodplains.

Based on the analyses to date, WSDOT is proposing the BMPs shown in Exhibit 2-9 for each TDA.

Exhibit 2-9
Preliminary Stormwater BMP Recommendations

TDA[1]	Proposed BMP	Comments
1	Stormwater treatment wetland with direct discharge to side channel of Snohomish River	Stormwater detention is not required in this TDA.
2	Combined stormwater treatment wetland/ detention pond	Impacts presented in the EA are conservatively based on the assumption that detention will be required. However, a downstream analysis indicates that erosion potential is low. If permitting agencies do not require detention, then impacts to the existing, naturally occurring wetland on site will be reduced.
3	Combined stormwater treatment wetland/ detention pond	
4	Combined stormwater treatment wetland/ detention pond	
5	Four combined stormwater treatment wetland/detention ponds around interchange with 164th Street SE, and infiltration along the highway east of the 164th Street SE interchange	
6	Two combined stormwater treatment wetland/detention ponds near the US 2 interchange	

1. Threshold discharge area

12 What other design elements does the project include and why?

As part of the project, WSDOT will also replace the two culverts that are currently partial barriers to fish passage with structures that are fully passable to fish (Exhibit 2-10). The two culverts, at MP 21.94 and MP 21.97, will be upgraded in compliance with the Washington State Hydraulic Code.

WSDOT identified two potential locations for a crossing that met the following criteria:

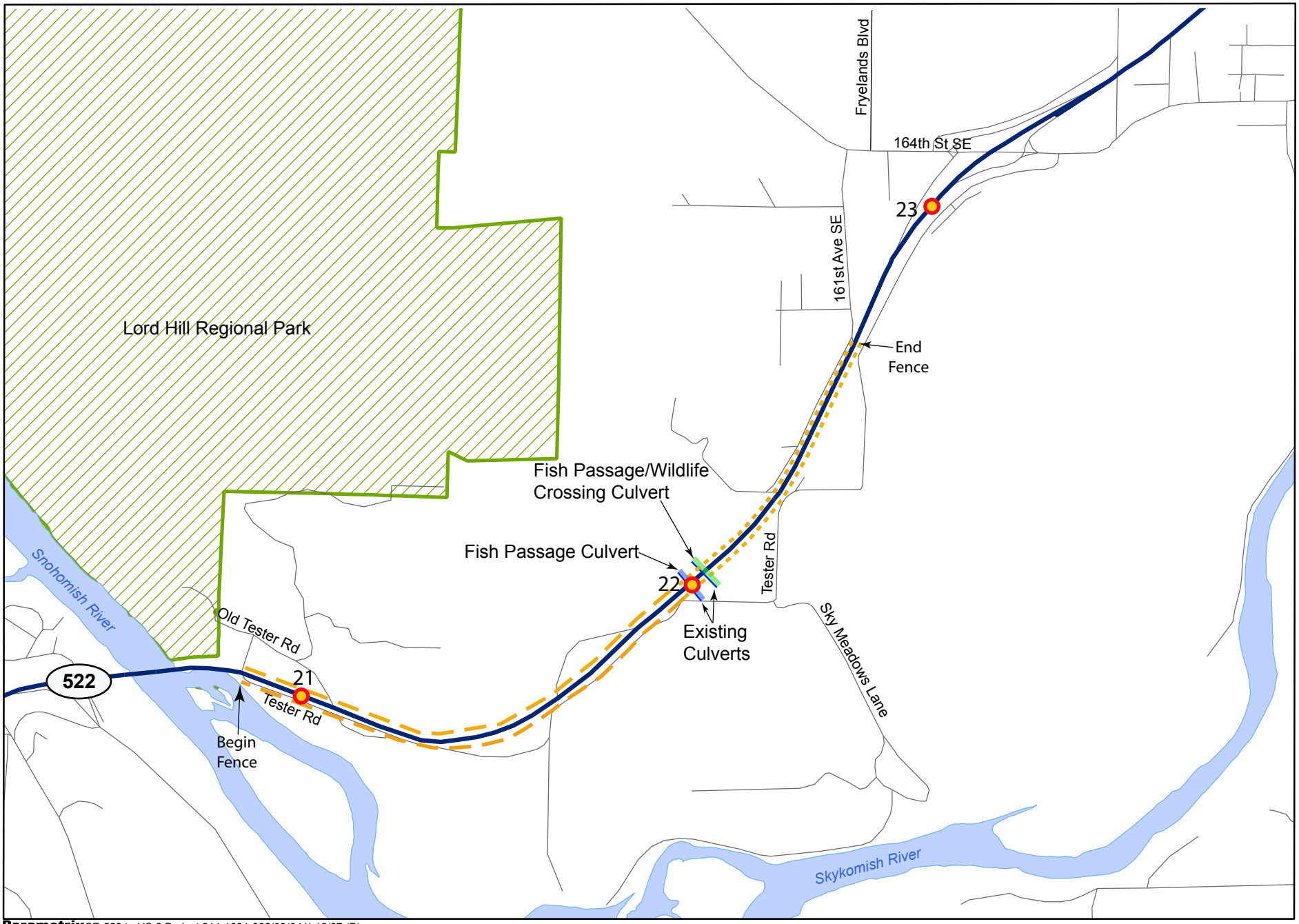
- They serve as connections between open habitats of the Snohomish River floodplain and the forested areas on Bald Hill.
- A relatively high number of wildlife sightings have occurred in these portions of the highway.
- They are located in a low relief, relatively open area below the existing SR 522 road grade that will accommodate a wildlife underpass.

WSDOT selected the location at MP 21.97 because it includes a stream crossing. Additional information regarding the need for and location of the wildlife crossing is provided in the Vegetation and Wildlife Discipline Report (Parametrix 2007f).

To address concerns about wildlife mortality as well as safety, the structure will be designed to facilitate wildlife undercrossings and accommodate large mammals such as deer and bear. The new wildlife undercrossing will be a bottomless culvert. The undercrossing will be a minimum of 8 feet high, 24 feet wide, and 180 feet long. The low-flow channel will be approximately 10 feet wide, 2 feet deep, and have 2:1 slopes along the banks. With the channel, the approximate maximum depth of the crossing will be 10 feet. In addition, two floodplain soil benches on either side of the low-flow channel (about 4 and 6 feet wide) will serve as a wildlife crossing and will accommodate larger flood flows and the passage of debris.

What is a bottomless culvert?

A bottomless culvert has a structure over the top and a natural streambed surface on the bottom, as shown in Exhibit 2-11.



Parametrix SR 522 to US 2 Project 214-1631-038/03(041) 12/07 (B)

N

0 0.3 0.6

Scale in Miles

Note: The fence may or may not be continuous depending on topography and retaining wall locations

8' Fence

6' Fence

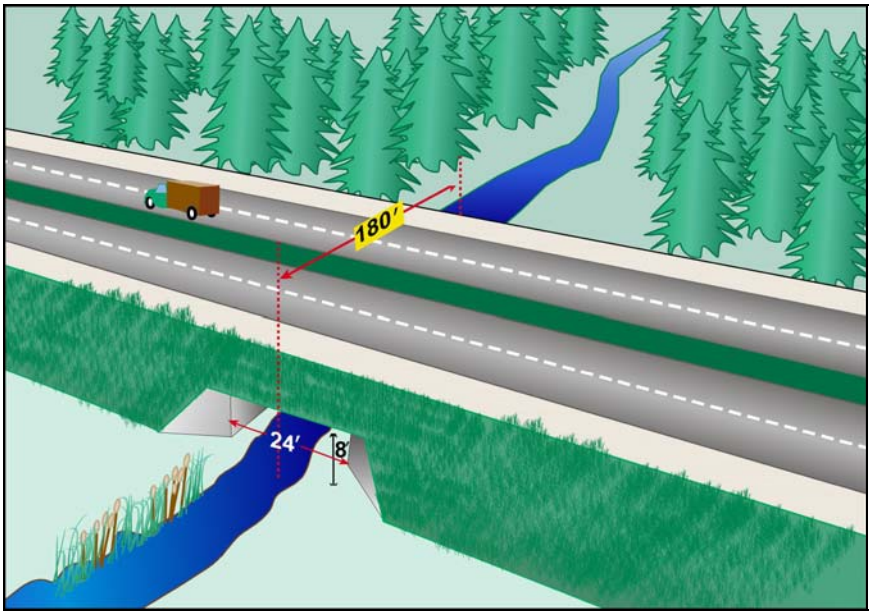
22 Milepost

Exhibit 2-10

Location of Fish Passage Culverts, Wildlife Crossing, and Fencing

Exhibit 2-11 shows what this undercrossing may look like.

Exhibit 2-11
Simulation of Potential Wildlife Crossing



In addition, WSDOT will construct and maintain barrier fencing to prevent wildlife from entering the roadway. Exhibit 2-10 depicts the potential location of the barrier fencing.

13 What is the No Action Alternative?

Under the No Action Alternative, WSDOT will not widen SR 522 from the Cathcart Road vicinity to US 2. WSDOT will conduct short-term minor construction as needed to maintain and repair the roadway for continued operation. WSDOT studies the No Action Alternative because it provides a benchmark to which we can compare the proposed improvements and environmental effects and benefits of the project.

WSDOT will maintain and protect the highway through the following actions:

- WSDOT will routinely assess the condition of the existing Snohomish River Bridge through the WSDOT Bridge Preservation Program. Any improvement identified through this program will be addressed under separate environmental review.

No Build vs. No Action

USDOT administers funds according to Title 23 of the CFR for national highways and transportation projects. When federal funds are assigned to a project, it is called an undertaking for an action. Under no action, things do occur ─ both naturally and as the result of agency or departmental management to the affected environment even if the proposed action does not occur ((FHWA Technical Advisory [T 6640.8A, Section V, E (1), Oct. 30, 1987]). While either the term No Build or No Action can be used, the term No Action distinguishes what would happen if the proposed action were not taken. No Build refers to the state of conditions, equivalent or better than, if a build alternative did not occur, 23 CFR 771.135(p)(5)(vii).

- In the future and also under separate environmental review, WSDOT will proceed with the seismic retrofitting of the existing bridge columns. (WSDOT has already completed the seismic retrofit of the bridge superstructure and upgrade of bridge guardrails.)
- WSDOT will routinely restripe the highway, replace delineators, repair and maintain guardrails, replace signs, clean drainage inlets, mow the adjacent right-of-way, and remove snow and ice from the highway.
- WSDOT will implement pavement resurfacing every 12 to 15 years to maintain the integrity of the roadway. On these intervals, WSDOT may consider spot safety concerns that would be fixed with minor guardrail, barrier, or delineation upgrades.

What other transportation improvements in the area will occur under the No Action Alternative?

The 2008–2013 Transportation Improvement Plan for the City of Monroe includes several improvements in the project vicinity:

- US 2/Kelsey Street Double Left-Turn Lane
- US 2/Chain Lake Road/Lewis Street (SR 203) Intersection Improvements
- Fryelands Boulevard/Main Street Roundabout
- US 2/Main Street/Old Owen Road Intersection Improvements
- Chain Lake Road Phase 2 Improvements
- WSDOT has planned a US 2 bypass around the north side of Monroe since the 1960s. As part of this corridor, the SR 522 alignment would extend north to the bypass alignment. WSDOT owns much of the right-of-way necessary for the US 2 bypass and SR 522 extension, but no construction has been completed to date due to funding constraints.